Market-Based Approaches Track

Trading in Watersheds Workshop

Point Nonpoint Pollutant Trading in Minnesota
Minnesota Pollution Control Agency

PROBLEM:

The lower 25 miles of the Minnesota River has a Biochemical Oxygen Demand (BOD) Total Maximum Daily Load (TMDL) for low dissolved oxygen conditions. The TMDL for BOD is fully allocated. The waste load directly into the reach is assigned to the Metropolitan Council's wastewater treatment plants and an upstream loading allocation to point and nonpoint combined, requires a forty- percent reduction in BOD. Rahr Malting Company, in 1996, and Southern Minnesota Sugar Beet Cooperative, in 1998, are two industries in the basin that sought permits to add loadings to the river. Complicating this TMDL is the nutrient related eutrophication impacts on dissolved oxygen levels. How do managers, water quality and industry, achieve economic expansion and load reductions simultaneously?

INNOVATION:

Point/Nonpoint pollutant trading NPDES permits requiring offsets for new or expanded discharges in fully allocated reaches. Minnesota developed a policy for requirements that facilitate point nonpoint trading in a resource protective manner. At the same time monitoring and analysis improved the understanding of the riverine processes occurring in the river.

The Minnesota pollutant trading policy determined that the trades must be:
Economical, equivalent, accountable and provide additional gains when considering other efforts. The water quality monitoring and analysis determined the vast majoring of the upstream BOD loading was due to a high nutrient concentration generating algal populations that would collect, die, and decay in the lower reach during low flows, in addition to sediment oxygen demand. This natural life cycle is predominately phosphorus limited and phosphorus is a persistent parameter in this watershed. The eutrophication tie provides greater spatial and temporal links to the low oxygen levels so that the NPDES permit can facilitate trades that meet the four objectives of the policy.

RESULTS:

Two point/nonpoint NPDES pollutant-trading permits have been issued in Minnesota. Rahr Malting Company has fulfilled the trading requirements as outlined in the permit offsetting the 150 pounds of BOD per day at a 2:1 trading ratio built into conservative factors in the crediting process. To date Rahr Malting Company has exceed the required offset by and additional 62 pounds per day. The second permit is the Southern Minnesota Beet Sugar Cooperative NPDES permit. This permit has tightened the nonpoint source crediting provisions and increased the trading ratio up to 2.6:1 to fully offset pound for pound in the discharge plus one for the benefit of the river and an additional 0.6 pounds for a safety margin. The permit has met its obligation in the first two years of operation. The MPCA does not have additional point/nonpoint-trading permits in line at this time. However, further refinement of the process is underway as these permits have shown the ability for environmental protection and more flexible administrative management process to not only exist but benefit both the environment and industry.

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The Lower Boise River Effluent Trading Demonstration Project

Problem

The four states of Alaska, Idaho, Oregon and Washington are under strict schedules to complete a high number of Total Maximum Daily Loads (TMDL) within the next few years (e.g., Idaho: 977 TMDLs by 2005; Oregon: 1,469 by 2007;Washington: 1,195 by 2012). Most of the TMDLs will require substantial reductions from both point sources and non-point sources, but with the recognition of the economic and technical limitations of what reductions point sources are currently able to achieve and the strong political resistance from the agriculture and timber interests to any new regulations to enforce reductions from their sectors. The states face an overwhelming challenge to develop realistic implementation strategies that will achieve the TMDL's environmental goals and not push the entire environmental and economic burden of achieving those reductions onto point sources just because they are directly regulated through enforceable permits.

Innovation

Effluent trading is an innovative tool that brings both point sources and non-point sources to the table in a business-like way to help solve water quality problems by focusing on cost effective, local solutions to problems caused by pollutant discharges to surface waters. Typically, a party facing relatively high pollutant reduction costs compensates another party to achieve an equivalent or better, though less costly, pollutant reduction. Effluent trading is voluntary; parties trade only if both are better off as a result of the trade. Designed to fit within existing regulatory frameworks, effluent trading typically will not create any new regulatory obligations. The Region 10 demonstration project seeks to establish a model for "dynamic" trading, in which qualified trades recorded in a central database automatically adjust the effluent limit set in the NPDES permits.

Results

In 1997, Idaho, Oregon, and Washington, and EPA Region 10 selected the Lower Boise River in Idaho as the first demonstration project in the region. The project's goal was to create a proposed trading system that is environmentally and legally sound; works within existing regulatory programs; allows trades to occur in a dynamic, market-based manner; and that is grounded in environmentally protective requirements. The project was funded by EPA Headquarters and Region 10, using a combination of state grants and EPA contracts. Participants in the Lower Boise River Effluent Trading Demonstration Project included wide representation from federal, state and local agencies with water quality responsibilities, agriculture, municipalities, industry and the environmental community. A neutral facilitator, Ross & Associates, assisted the diverse group in identifying issues and developing problem-solving approaches to address them.

The Lower Boise River demonstration project was launched in January 1998, starting with assessing potential demand and supply, and then developing procedures and mechanisms for a framework to support "dynamic" trading, using two model trades. A summary of participant recommendations for the trading framework was completed in September 2000, for Idaho Department of Environmental Quality (DEQ) and EPA to include in the TMDL and its implementation plan, the point sources' NPDES permits (which are issued by EPA Region 10 since it has not been delegated to Idaho), and state trading rules. The trading framework will be adjusted to incorporate the specific environmental objectives defined by the TMDLs for the Lower Boise River and the Snake River/Hells Canyon complex (into which the Boise River flows), both of which are not expected to be completed until December 2001. Other elements are also still being developed, such as the list of approved BMPs and their specific design, maintenance and monitoring requirements.

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Documents on the Lower Boise River project are available on the Web at:
www.epa.gov/r10earth/
Click on Index, then "B" for "Boise."